AMENDMENTS TO THE CLAIMS

1. (Currently Amended) A <u>personal care product composition</u> comprising <u>a preservative</u> system, the preservative system comprising:

- (a) (i) a quaternary ammonium biocide having the formula $N^{+}R^{1}R^{2}R^{3}R^{4}X^{2}$,
 - (ii) a polymeric quaternary ammonium biocide, or
 - (iii) a mixture thereof; and
- (b) (i) a ketone acid or salt thereof,
 - (ii) an aromatic carboxylic acid or a salt thereof, or
 - (iii) a mixture thereof,

wherein R^1 and R^2 are independently unsubstituted or hydroxy substituted linear or branched C_1 - C_4 alkyl, - $(CH_2CH_2O)_mCH_2CH_2OH$, or - $(CH_2CHCH_3O)_mCH_2CHCH_3OH$ where m is 1 to 10; R^3 is a substituted or unsubstituted benzyl, ethylbenzyl, methylnaphthyl, or linear or branched C_1 - C_{22} alkyl; R^4 is - $R^5(O)_n(C_6H_4)R^6$ where n is θ -or 1; R^5 is a substituted or unsubstituted C_1 - C_8 alkyl or C_1 - C_8 alkoxyalkyl; R^6 is hydrogen or a substituted or unsubstituted, linear or branched C_1 - C_{12} alkyl; and X^- is an anoin anion.

- 2. (Currently Amended) The <u>personal care product</u> composition of claim 1, wherein R⁵ is -CH₂CH₂OCH₂CH₂-.
- 3. (Currently Amended) The <u>personal care product</u> eomposition of claim 2, wherein R^4 is [2-[2-(4-diisobutyl-phenoxy)ethoxy]ethyl].
- 4. (Currently Amended) The <u>personal care product composition</u> of claim 1, wherein the quaternary ammonium biocide is a salt of benzethonium.
- 5. (Currently Amended) The <u>personal care product composition</u> of claim 4, wherein the quaternary ammonium biocide is benzethonium chloride.

Claims 6-10 (canceled).

11. (Currently Amended) The <u>personal care product eomposition</u> of claim 1, wherein X is chloride or carbonate.

- 12. (Currently Amended) The <u>personal care product</u> eomposition of claim 11, wherein X⁻ is chloride.
- 13. (Currently Amended) The <u>personal care product</u> composition of claim 11, wherein X⁻ is carbonate.
- 14. (Currently Amended) The <u>personal care product composition</u> of claim 1, wherein the ketone acid is a cyclic ketone acid or a salt thereof.
- 15. (Currently Amended) The <u>personal care product composition</u> of claim 14, wherein the cyclic ketone acid has the formula

wherein R^7 , R^8 , and R^9 are independently C_1 - C_{10} alkyl, C_1 - C_{10} alkenyl, C_1 - C_{10} alkenyl, aryl, aryl substituted with halogen, or $(C_1$ - C_{10} alkyl)aryl.

- 16. (Currently Amended) The <u>personal care product</u> eomposition of claim 15, wherein R^7 , R^8 , and R^9 are independently C_1 - C_4 alkyl; or R^7 and R^8 form a 5-12 member ring.
- 17. (Currently Amended) The <u>personal care product</u> composition of claim 15, wherein the cyclic ketone acid has the formula

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- 18. (Currently Amended) The <u>personal care product composition</u> of claim 14, wherein the ketone acid is dehydroacetic acid or a salt thereof.
- 19. (Currently Amended) The <u>personal care product</u> eomposition of claim 1, wherein the ketone acid is sodium dehydroacetate.
- 20. (Currently Amended) The <u>personal care product</u> composition of claim 1, wherein the ketone acid is encapsulated.
- 21. (Currently Amended) The <u>personal care product composition</u> of claim 18, wherein the dehydroacetic acid or salt thereof is encapsulated in cyclodextrin.

22. (Currently Amended) The <u>personal care product</u> eomposition of claim 1, wherein the quaternary ammonium biocide is benzethonium chloride and the ketone acid is dehydroacetic acid or a salt thereof.

Claim 23 (canceled).

- 24. (Currently Amended) The <u>personal care product eomposition</u> of claim +82, wherein the aromatic carboxylic acid is benzoic acid, derivative thereof, or salt thereof.
- 25. (Currently Amended) The <u>personal care product composition</u> of claim +82, wherein the aromatic carboxylic acid has the formula

wherein R^{10} and R^{11} are independently H, -OH, or -OC(O)CH₃; and R^{12} is H, Na, K, Ca, or Mg.

- 26. (Currently Amended) The <u>personal care product composition</u> of claim 182, wherein the aromatic carboxylic acid is a hydroxy benzoic acid, derivative thereof, or salt thereof.
- 27. (Currently Amended) The <u>personal care product composition</u> of claim 26, wherein the hydroxy benzoic acid is salicylic acid or a salt thereof.
- 28. (Currently Amended) The <u>personal care product composition</u> of claim 27, wherein the salt of salicylic acid is sodium salicylate.

29. (Currently Amended) The <u>personal care product composition</u> of claim 182, wherein the quaternary ammonium biocide is benzethonium chloride and the aromatic carboxylic acid is sodium salicylate.

Claim 30 (canceled).

- 31. (Currently Amended) The <u>personal care product</u> composition of claim 1, further comprising a solvent.
- 32. (Currently Amended) The <u>personal care product</u> eomposition of claim 31, wherein the solvent is water, an alcohol, a glycol, an ester, an ether, a polyether or any combination of any of the foregoing.
- 33. (Currently Amended) The <u>personal care product</u> composition of claim 1, wherein the composition comprises a biocidally effective amount of the quaternary ammonium biocide.
- 34. (Currently Amended) The <u>personal care product</u> composition of claim 1, wherein the composition comprises a fungicidally effective amount of the quaternary ammonium biocide.
- 35. (Currently Amended) The <u>personal care product eomposition</u> of claim 1, wherein the weight ratio of the ketone acid to the quaternary ammonium biocide ranges from about 0.00056:1 to about 1990:1.
- 36. (Currently Amended) The <u>personal care product</u> composition of claim 35, wherein the weight ratio of the ketone acid to the quaternary ammonium biocide ranges from about 0.0056:1 to about 1400:1.
- 37. (Currently Amended) The <u>personal care product composition</u> of claim 1, wherein said composition comprises from about 0.00005 to about 0.5% by weight of ketone acid and from about 0.00005 to about 0.45% by weight of

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quaternary ammonium biocide, based upon 100% weight of total composition.

- 38. (Currently Amended) The <u>personal care product composition</u> of claim 37, wherein said composition comprises from about 0.0005 to about 0.35% by weight of ketone acid and from about 0.0005 to about 0.2% by weight of quaternary ammonium biocide, based upon 100% weight of total composition.
- 39. (Currently Amended) The <u>personal care product composition</u> of claim 182, wherein the weight ratio of the aromatic carboxylic acid to the quaternary ammonium biocide ranges from about 0.00056:1 to about 1990:1.
- 40. (Currently Amended) The <u>personal care product composition</u> of claim 39, wherein the weight ratio of the aromatic carboxylic acid to the quaternary ammonium biocide ranges from about 0.0056:1 to about 1400:1.
- 41. (Currently Amended) The <u>personal care product composition</u> of claim 182, wherein said composition comprises from about 0.00005 to about 0.5% by weight of aromatic carboxylic acid and from about 0.00005 to about 0.45% by weight of quaternary ammonium biocide, based upon 100% weight of total composition.
- 42. (Currently Amended) The <u>personal care product composition</u> of claim 41, wherein said composition comprises from about 0.0005 to about 0.35% by weight of aromatic carboxylic acid and from about 0.0005 to about 0.2% by weight of quaternary ammonium biocide, based upon 100% weight of total composition.
- 43. (Currently Amended) An antimicrobial composition A personal care product comprising a preservative system, the preservative system comprising a synergistic mixture of:

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- (a) dehydroacetic acid or a salt thereof; and
- (b) benzethonium chloride.

Claims 44-45. (Canceled)

- 46. (Currently Amended) A preservative <u>system formulation</u> comprising a synergistic mixture of:
 - (a) dehydroacetic acid or a salt thereof;
 - (b) a benzethonium salt; and
 - (c) salicylic acid or a salt thereof.
- 47. (Currently Amended) A preservative formulation comprising a synergistic mixture of:
 - (a) dehydroacetic acid or a salt thereof;
 - (b) a benzethonium salt;
 - (c) salicylic acid or a salt thereof[[.]];
 - (d) benzoic acid or a salt thereof;
 - (e) phenoxyethanol; and
 - (f) benzyl alcohol.
- 48. (Original) The preservative formulation of claim 47 comprising:
 - (a) from about 5 to about 40% by weight of dehydroacetic acid;
- (b) from about 1 to about 20% by weight of benzethonium chloride;
 - (c) from about 2.5 to about 20% by weight of salicylic acid;
 - (d) from about 2.5 to about 20% by weight of benzoic acid;
 - (e) from about 20 to about 50% by weight of phenoxyethanol; and
- (f) from about 5 to about 50% by weight of benzyl alcohol, based upon 100% total weight of preservative formulation.

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49. (Original) The preservative formulation of claim 48 comprising:

- (a) about 10% by weight of dehydroacetic acid;
- (b) about 5% by weight of benzethonium chloride;
- (c) about 10% by weight of salicylic acid;
- (d) about 10% by weight of benzoic acid;
- (e) about 35% by weight of phenoxyethanol; and
- (f) about 30% by weight of benzyl alcohol,

based upon 100% total weight of preservative formulation.

- 50. (Original) A composition comprising from about 0.01 to about 2% by weight of the preservative composition of claim 48.
- 51. (Currently Amended) A <u>personal care product comprising a preservative system</u> formulation, the <u>preservative system</u> comprising a synergistic mixture of:
 - (a) a benzethonium salt; and
 - (b) at least one of
 - (i)—dehydroacetic acid or a salt thereof, and
 - (ii) -salicylic-acid or a salt thereof.
- 52. (New) The personal care product of claim 51, wherein the personal care product is a shampoo, conditioner, cream, lotion, cosmetic, or soap.
- 53. (New) The personal care product of claim 52, wherein the personal care product is a shampoo.
- 54. (New) The personal care product of claim 52, wherein the personal care product is a conditioner.
- 55. (New) The personal care product of claim 52, wherein the personal care product is a soap.

- 56. (New) The personal care product of claim 51, comprising an anionic formulation.
- 57. (New) The personal care product of claim 1, wherein the personal care product is a shampoo, conditioner, cream, lotion, cosmetic, or soap.
- 58. (New) The personal care product of claim 57, wherein the personal care product is a shampoo.
- 59. (New) The personal care product of claim 57, wherein the personal care product is a conditioner.
- 60. (New) The personal care product of claim 57, wherein the personal care product is a soap.
- 61. (New) The personal care product of claim 1, comprising an anionic formulation.
- 62. (New) The personal care product of claim 43, wherein the personal care product is a shampoo, conditioner, cream, lotion, cosmetic, or soap.
- 63. (New) The antimicrobial composition of claim 62, wherein the personal care product is a shampoo.
- 64. (New) The antimicrobial composition of claim 62, wherein the personal care product is a conditioner.
- 65. (New) The antimicrobial composition of claim 62, wherein the personal care product is a soap.
- 66. (New) The antimicrobial composition of claim 43, wherein the personal care product comprises an anionic formulation.

- 67. (New) The personal care product of claim 44, wherein the personal care product is a shampoo, conditioner, cream, lotion, cosmetic, or soap.
- 68. (New) The personal care product of claim 67, wherein the personal care product is a shampoo.
- 69. (New) The personal care product of claim 67, wherein the personal care product is a conditioner.
- 70. (New) The personal care product of claim 67, wherein the personal care product is a shampoo.
- 71. (New) The personal care product of claim 44, comprising an anionic formulation.
- 72. (New) The method of claim 45, wherein the personal care product is a shampoo, conditioner, cream, lotion, cosmetic, or soap.
- 73. (New) The method of claim 72, wherein the personal care product is a shampoo.
- 74. (New) The method of claim 72, wherein the personal care product is a conditioner.
- 75. (New) The method of claim 72, wherein the personal care product is a soap.
- 76. (New) The preservative system of claim 46, wherein the preservative system is incorporated into a personal care product.
- 77. (New) The preservative system of claim 76, wherein the personal care product is a shampoo, conditioner, cream, lotion, cosmetic, or soap.

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78. (New) The preservative system of claim 77, wherein the personal care product is a shampoo.

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- 79. (New) The preservative system of claim 77, wherein the personal care product is a conditioner.
- 80. (New) The preservative system of claim 77, wherein the personal care product is a soap.
- 81. (New) The preservative system of claim 76, wherein the personal care product comprises an anionic formulation.
- 82. (New) The personal care product of claim 1, further comprising an aromatic carboxylic acid or a salt thereof.